Preventative Maintenance Work
Prioritization and Funding Criteria

Federal Highways approved the use of HBRRP funds for Preventative Maintenance projects in 2002. The following preventative maintenance categories have been developed for the Washington State local agency bridge programs.

Local agencies can obtain HBRRP funds under the Preventative Maintenance Program to perform more expensive maintenance projects such as deck and joint maintenance, bridge member strengthening, or electrical mechanical work on movable bridges. The minimum project cost shall be $30,000. A 10-year moratorium on further use of federal funds will be in effect after completion of work on projects funded with Preventative Maintenance funds. The moratorium does not apply to scour mitigation projects.

All categories must stand-alone as projects. Flexibility will be exercised by shifting funds to various categories based on greatest need.

The local agency bridge owners in Washington State are currently gathering BMS element data for use in prioritizing funding needs. We will assure that funds are being used wisely by utilizing information provided by the Bridge Management System (BMS) in Preventative Maintenance funding decisions. The intent is to move towards using BMS to determine all local agency preventative maintenance, rehabilitation, or replacement project needs. Highways & Local Programs will use BMS to prioritize bridge projects for Washington State local agency bridge owners by January 2009.

The following criteria details funding restrictions, eligibility, and prioritization of candidates for Preventative Maintenance projects:

Preventative Maintenance Categories

Scour Mitigation –

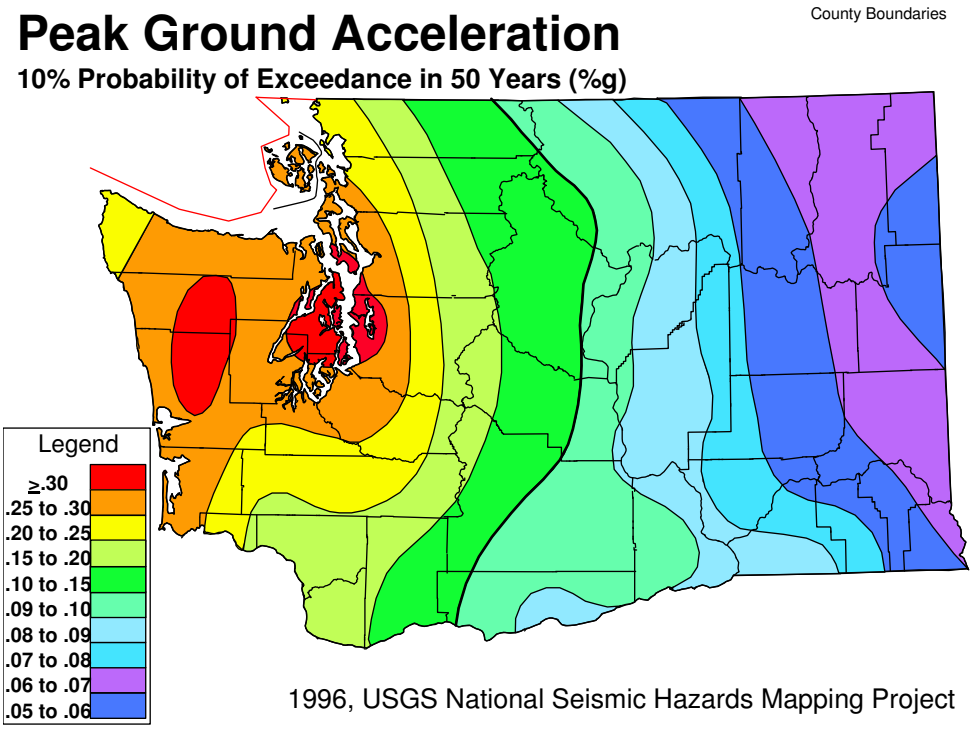
- Funding restrictions
  - No time restrictions on Federal BR funds for future projects.
- Eligibility
  - Bridges must be scour critical, a scour code of 3 or less, and mitigation must be engineered repairs.
- Prioritization
  - Candidates prioritized by lowest scour code first and then by higher ADT routes.

Painting –

- Funding Restrictions
  - Painting is for preservation of steel bridge structures. Not for aesthetics.
- Eligibility
  - 2% minimum of total paint area must be in condition state 3.
- Prioritization
  - Condition States for primary steel elements, because the condition will not be affected by painting the member, will not be considered in prioritizing painting projects. However if there is a significant amount in Condition State 3 then it may not be prudent to paint the bridge.
  - Structurally Deficient bridges will be looked at for funding on a case-by-case basis concerning section loss and/or lack of capacity.
  - Remedial work to strengthen corrosion weakened or collision-damaged members can be performed on a case-by-case basis.
  - Prioritization will be based on paint BMS Conditions State coding. The higher the quantity in the higher Conditions States the higher the priority.
  - Paint ranking formula; $(1/((50SF_3 + 10SF_2 + SF_1)/ TSF))*100$ Where SF_x is square feet of paint in condition state 1, 2, or 3 and TSF is the total square feet of painted surface on the bridge. Paint ranking numbers range from 2 to 100 where the best candidates for funding are nearest to 2.
  - ADT, Detour, year built, and bridge replacement value information may be considered in making funding recommendations.

Seismic Retrofit –

- Funding Restrictions
  - Seismic Retrofits have been fully funded each spring since 1999 and most likely will see a $1-2 million funding level until all retrofits are completed.
  - Superstructure retrofits will be completed with this money prior to funding substructure retrofits, which will begin with single column structures.
- Eligibility
  - Must have seismic design deficiencies identified and exist in a Seismic Acceleration Zone of .10 (10%) or greater as determined by the 1996 USGS 10% probability of exceedance in 50 years map.
- Prioritization
  - Prioritized by acceleration code, ADT, importance, and remaining life similar to that used by the WSDOT Bridge Management Office as published in the Bridge Seismic Retrofit Program Report, 1993.



Deck Repair –

- Funding Restrictions
  - Preliminary Project Site Review will be performed to determine if stand-alone deck preservation project or it should be part of a rehabilitation project.
- Eligibility
  - Based on Bridge Management System (BMS) Condition States over 2% of entire deck area in condition states 2 through 4 are eligible.
- Prioritization
  - Should show cost effectiveness of option selected and life expectancy with maintenance.
  - Deck ranking formula; $(1/((50SF_4 + 25SF_3 + 10SF_2 + SF_1)/ TSF))*100$ Where SF_x is square feet of Deck in condition state 1, 2, 3 or 4 and TSF is the total square feet of deck on the bridge. Deck ranking numbers range from 2 to 100 where the best candidates for funding are nearest to 2.

Preservation work parameters for the different types of decks:

Concrete Decks

- Includes overlays that will be rigid and composite with existing deck material.
- Asphalt concrete overlays must be shown to be more cost effective than a rigid overlay and must have a membrane.
- Complete deck replacement. Preferred to be composite with support girders.
- Deck repairs, joint repairs, and patching of damaged areas are eligible but will be considered on a case-by-case basis. This includes previously rehabilitated decks using rigid overlays.

Steel Decks

- Corrugated deck would be total replacement. Corrugated decks will not be installed.
- Deck panel replacements or repair projects are eligible.

Timber Decks

- Replace all of plank type decks with engineered deck systems.
- Replacement or repair is eligible for nail laminated or panel type decks.
- Requires a designed overlay system. All asphalt overlays shall have a membrane.

Decks with Asphalt overlays-

- Will be evaluated on a case-by-case basis.

Bridge Strengthening – To eliminate need for posting, mitigate further fatigue damage, increase fatigue life, and/or to replace or strengthen main load carrying members.

- Funding Restrictions
  - This work should be of high priority for routes with higher Average Daily Truck Traffic (ADTT) to eliminate load posting and to increase the fatigue life of primary bridge elements.
  - Should be based on current load rating information.
  - Work includes strengthening primary bridge elements, which may include deck replacement to a deck with composite action.
- Eligibility
  - Loss of section due to fatigue cracking. –OR-
  - Bridge must be posted, shored, or have restricted use.
- Priority
  - Based on SR.
  - Should also consider the percent of trucks, detour route, year built, and replacement cost.

Electrical Mechanical – To ensure the operational reliability of deteriorated systems.

- Funding Restrictions
  - Will be evaluated on a case-by-case basis.
  - Look at history of operation and maintenance including number of openings and operational reliability. What the cost of rehabilitation is verses replacement of the bridge. Age of the bridge and/or operating system.
- Eligibility
  - Demonstrate need for system maintenance of movable components, to include electrical systems where appropriate, to ensure operation reliability.
- Prioritization
  - There are so few movable bridge candidates that prioritization of candidates is not required.